CLAIMS

What is claimed is:

1. A method for the processing of an electromagnetic input signal, wherein said signal is passed through an input to be modified across a plurality of modifying segments using a characteristic of said signal to generate an output signal, wherein said plurality of segments have a plurality of states controlled by a control signal, said method comprising the steps of:

determining a reference impedance for said input for one or more states of said plurality of segments; and

adaptively adjusting impedance of said input toward said reference impedance.

2. A method as in claim 1, wherein said adaptive adjustment of said impedance is accomplished by adjusting the phase of said input signal and the resistance of said input based upon said reference.

3. A method as in claim 1, wherein said adaptive adjustment of said impedance of said input is based upon a shift in impedance of said input away from said reference impedance due to a change in said state of said plurality of segments.

4. A method as in claim 1, wherein said input signal is a carrier wave modulated by the phase portion of an information signal, and said control signal is comprised from the magnitude portion of said input signal.

5. A method as in claim 1, wherein one or more of said segments is independently controlled as a power amplifier by said characteristic of said input signal to contribute power to an output signal.

6. A method as in claim 5, wherein said combining of power is accomplished using one or more selected from the group consisting of power transformers, quarter-wave transmission lines, discrete LC components, and a Pi-networks.

7. A method as in claim 1, wherein one or more of said segments is independently controlled as a current source by said characteristic of said input signal to contribute current to an output signal.

8. A method for the processing of an electromagnetic input signal, wherein said signal is passed through an input to be amplified across a plurality of amplifying segments to generate an output signal, wherein said plurality of segments have a plurality of states controlled by a control signal, said method comprising the steps of:

determining any shift in impedance of said input to said plurality of segments after a change in said state of said segments; and

adaptively adjusting said impedance of said input based upon said shift.

9. A method as in claim 8, wherein said adaptive adjustment of said impedance of said input is accomplished by determining a reference state input impedance for said input, and adjusting

the phase of said input signal and the resistance of said input after each change in state back toward said reference state input impedance.

10. An apparatus for processing an electromagnetic input signal, wherein said signal is passed through an input to be modified across a plurality of modifying segments using a characteristic of said signal to generate an output signal, wherein said plurality of segments have a plurality of states controlled by a control signal, said apparatus comprising:

a matching circuit to determine a reference impedance for said input for one or more states of said plurality of segments; and adaptively adjust impedance of said input toward said reference impedance.

11. The apparatus of Claim 10, wherein said matching circuit comprises one or more selected from the group consisting of a digital signal processor, a microprocessor, a logic circuit, an integrated circuit, a phase shifter, a resistor, a variable inductor, and a variable capacitor.

12. The apparatus of Claim 11, wherein said phase shifter comprises one or more selected from the group consisting of a digital stepped phase shifter, delay lines, waveguide elements, and microstrips.

13. The apparatus of Claim 11, wherein said resistor is a digital resistor.

14. The apparatus of Claim 10, further comprising a source of a carrier wave modulated by the phase portion of an information signal that is said electromagnetic input signal inputted into

said plurality of segments., and a source for generating said control signal from a magnitude portion of said input signal.

15. The apparatus of Claim 10, wherein one or more of said segments is independently controlled as a power amplifier by said characteristic of said input signal to contribute power to an output signal.

16. The apparatus of Claim 15, wherein said combining of power is accomplished using one or more selected from the group consisting of power transformers, quarter-wave transmission lines, discrete LC components, and a Pi-networks.

17. The apparatus of Claim 10, wherein one or more of said segments is independently controlled as a current source by said characteristic of said input signal to contribute current to an output signal.

18. A circuit for determining a reference impedance for an input to a plurality of segments for one or more operational states of said plurality of segments; and for adaptively adjusting impedance of said input toward said reference impedance.

19. The circuit of Claim 18, wherein comprising one or more selected from the group consisting of a digital signal processor, a microprocessor, a logic circuit, an integrated circuit, a phase shifter, a resistor, a variable inductor, and a variable capacitor.

20. The circuit of Claim 19, wherein said phase shifter comprises one or more selected from the group consisting of a digital stepped phase shifter, delay lines, waveguide elements, and microstrips.

21. The circuit of Claim 19, wherein said resistor is a digital resistor.